

U.S. Application Serial No. 09/314,819

IN THE CLAIMS:

Please amend claims 5, 9, 15, 19, 24, 25 and 32, and cancel claims 1-4, 8, 13, 14, 21-23 and 27-31, as follows:

1-4. (canceled)

5. (currently amended) The A method of activating a radiotelephone operable in a spread-spectrum multiple access radiotelephone system, the method claim 4 further comprising the steps of:

activating at least a portion of a searcher receiver;

receiving a transmitted signal, wherein the transmitted signal comprises at least one pilot signal that is spread by a pseudorandom (PN) sequence;

activating at least one demodulation branch after acquiring a PN sequence timing of a pilot signal that produces a correlation energy above a predetermined threshold, which occurs after activating at least a portion of the searcher receiver;

synchronizing the at least one demodulation branch to the at least a portion of the searcher receiver after activating the at least one demodulation branch;

activating a system timing unit after acquiring the PN sequence timing; and

synchronizing the system timing unit to the at least one demodulation branch after synchronizing the at least one demodulation branch.

6. (original) The method of claim 5 wherein synchronizing the system timing unit occurs at a predetermined PN chip boundary of the PN sequence, the predetermined PN chip boundary denoting less than a full length of the PN sequence.

7. (original) The method of claim 6 wherein synchronizing the system timing unit comprises loading state information into the system timing unit, the state information including a state of a PN roll count and a state of a PN position count.

8. (canceled)

U.S. Application Serial No. 09/314,819

9. (currently amended) ~~The~~ A method of activating a radiotelephone operating in a slotted paging mode, the radiotelephone operable in a code division multiple access (CDMA) radiotelephone system, the method ~~claim 8 further comprising, in combination:~~

activating a searcher receiver;

detecting a pilot signal;

acquiring a PN sequence timing related to a PN sequence associated with the pilot signal;

activating at least one demodulation branch after activating the searcher receiver;

synchronizing the at least one demodulation branch to the searcher receiver;

activating a system timing unit after activating the searcher receiver; and

synchronizing the system timing unit relative to the at least one demodulation branch after synchronizing the at least one demodulation branch.

10. (original) The method of claim 9 wherein synchronizing the system timing unit occurs at a predetermined PN chip boundary of the PN sequence, the predetermined PN chip boundary denoting less than a full length of the PN sequence.

11. (original) The method of claim 10 wherein synchronizing the at least one demodulation branch to the searcher receiver comprises:

synchronizing a branch timing unit to the searcher receiver; and

loading state information from the searcher receiver into the at least one demodulation branch.

12. (original) The method of claim 11 further comprising decoding an information signal with the at least one demodulation branch after synchronizing the system timing unit.

13-14. (cancelled)

15. (currently amended) ~~The~~ An apparatus for operating a code division multiple access (CDMA) radiotelephone in a slotted paging mode, the apparatus ~~of claim 14 further comprising:~~

U.S. Application Serial No. 09/314,819

a searcher receiver periodically activated to find a pilot signal of suitable signal strength, the searcher receiver acquiring a pseudorandom noise (PN) sequence timing of the pilot signal after each periodic activation of the searcher receiver;

at least one demodulation branch coupled to the searcher receiver;

control circuitry to periodically activate the at least one demodulation branch after each periodic activation of the searcher receiver and to direct the at least one demodulation branch to synchronize relative to the searcher receiver after each periodic acquiring of the PN sequence timing; and

a system timing unit coupled to the at least one demodulation branch, the control circuitry periodically activating the system timing unit substantially after each periodic activation of the searcher receiver, the control circuitry directing the system timing unit to synchronize relative to the PN sequence timing of the pilot signal after each periodic synchronization of the at least one demodulation branch.

16. (original) The apparatus of claim 15 wherein the control circuitry comprises a microprocessor.

17. (original) The apparatus of claim 16, wherein the system timing unit synchronizes relative to the PN sequence timing of the pilot signal by receiving PN state information from the at least one demodulation branch.

18. (original) The apparatus of claim 17 wherein the system timing unit synchronizes at a predetermined PN chip boundary that occurs more frequently than a PN roll boundary.

19. (currently amended) The apparatus of claim 14 15 further comprising a real-time PN generator coupled to the searcher receiver.

20. (original) The apparatus of claim 19 further comprising:

a receiver sample buffer coupled to the searcher receiver, the receiver sample buffer for storing samples of detected pilot signals; and

U.S. Application Serial No. 09/314,819

a high-speed PN generator for searching the stored samples for a pilot signal and associated pilot signal PN timing that produces a correlation energy above a predetermined threshold.

21-23. (canceled)

24. (currently amended) ~~The A~~ method of ~~claim 23~~ activating a code division multiple access (CDMA) radiotelephone operating in a slotted paging mode of a CDMA cellular telephone system, the method comprising the steps of:

activating a searcher receiver;

acquiring, with the searcher receiver, a pseudo-random noise (PN) sequence timing of a PN sequence associated with a pilot signal;

activating at least one demodulation branch after activating the searcher receiver, wherein the at least one demodulation branch is activated after acquiring the PN sequence timing of the pilot signal;

slewing a PN timing of the searcher receiver to the PN sequence timing of the pilot signal; and

synchronizing the at least one demodulation branch to the PN timing of the searcher receiver after slewing the PN timing of the searcher receiver, wherein synchronizing the at least one demodulation branch comprises parallel loading PN state information from the searcher receiver into the at least one demodulation branch.

25. (currently amended) ~~The A~~ method of activating a code division multiple access (CDMA) radiotelephone operating in a slotted paging mode of a CDMA cellular telephone system, the method ~~claim 23~~ further comprising the steps of:

activating a searcher receiver;

acquiring, with the searcher receiver, a pseudo-random noise (PN) sequence timing of a PN sequence associated with a pilot signal;

U.S. Application Serial No. 09/314,819

activating at least one demodulation branch after activating the searcher receiver, wherein the at least one demodulation branch is activated after acquiring the PN sequence timing of the pilot signal;

slewing a PN timing of the searcher receiver to the PN sequence timing of the pilot signal;

synchronizing the at least one demodulation branch to the PN timing of the searcher receiver after slewing the PN timing of the searcher receiver;

activating a system timing unit after activation of the searcher receiver; and

synchronizing the system timing unit to the at least one demodulation branch after slewing the PN timing of the searcher receiver.

26. (original) The method of claim 25 wherein synchronizing the system timing unit occurs at a predetermined PN chip boundary within the PN sequence of the pilot signal, the predetermined PN chip boundary being less than a full length of the PN sequence of the pilot signal.

27-31. (canceled)

32. (currently amended) The method of claim ~~24~~ 21, wherein acquiring the PN sequence timing with the searcher receiver comprises:

storing samples of a plurality of detected pilot signals at a first rate; and

searching at a second rate the stored samples to find the PN sequence timing of the pilot signal that produces a correlation energy above a predetermined threshold, the second rate being a higher speed than the first rate.

33. (original) A method of activating a radiotelephone during slotted paging mode operation, the radiotelephone operable in a code division multiple access radiotelephone system, the method comprising, in combination:

activating a searcher receiver;

detecting a pilot signal that produces a correlation energy above a predetermined threshold;

U.S. Application Serial No. 09/314,819

acquiring a PN sequence timing of the pilot signal with the searcher receiver;  
activating a system timing unit after acquiring the PN sequence timing of the pilot signal;  
activating at least one demodulation branch after acquiring the PN sequence timing of the pilot signal;

synchronizing the at least one demodulation branch to the PN sequence timing of the pilot signal after acquiring the PN sequence timing; and

synchronizing the system timing unit to the PN sequence timing of the pilot signal after synchronizing the at least one demodulation branch.

34. (original) The method of claim 33 wherein synchronizing the system timing unit occurs at a predetermined PN chip boundary of a PN sequence of the pilot signal, the predetermined PN chip boundary being less than a full length of the PN sequence.

35. (original) The method of claim 33 wherein synchronizing the at least one demodulation branch comprises loading state information from the searcher receiver into the at least one demodulation branch and into a branch timing unit.

36. (original) A method of activating a radiotelephone in a slotted paging mode, the radiotelephone operable in a code division multiple access (CDMA) radiotelephone system, the method comprising the steps of:

programming a pseudorandom noise (PN) sequence awake state;  
activating at least a portion of a searcher receiver;  
loading the PN sequence awake state;  
incrementing at a first rate the PN sequence awake state to generate a local PN sequence;  
detecting at least one pilot signal having an associated PN sequence;  
storing digital samples of the at least one pilot signal at the first rate;  
searching at a second rate for a pilot signal and an associated PN sequence phase that produces a correlation energy above a predetermined threshold, the second rate faster than the first rate;  
slewing the local PN sequence to the PN sequence phase associated with the pilot signal;

U.S. Application Serial No. 09/314,819

activating a system timing unit after the step of slewing;  
activating at least one demodulation branch after the step of slewing;  
synchronizing a PN timing of the at least one demodulation branch to the PN sequence phase associated with the pilot signal after the step of slewing; and  
synchronizing a PN timing of the system timing unit to the PN sequence phase associated with the pilot signal after the step of synchronizing the PN timing of the at least one demodulation branch.

37. (original) The method of claim 36 wherein the step of synchronizing the PN timing of the system timing unit occurs at a predetermined PN chip boundary that is less than a PN roll boundary of the PN sequence associated with the pilot signal.